

TAXONOMY OF THE SPECIES OF THE *LACHESILLA RENA* COMPLEX (PSOCOPTERA: LACHESILLIDAE)¹

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ABSTRACT: The *Lachesilla rena* species complex is diagnosed. A unique character within the genus, antero-posterior division of the male clunium into two regions, is noted and names are proposed for the two regions. The five species in this complex are described with four of them named as new. A key to the species is included.

The *Lachesilla rena* species complex is a small subgroup of the *L. pedicularia* group of García Aldrete (1974). That author illustrated some of the species of this complex but mislabeled some of the undescribed ones as *L. rena* Sommerman. Mockford (1993 Figs. 214, 660, 661) also erred in assigning males of other species of the complex to *L. rena*. García Aldrete (1996) again included several species under the name *L. rena*. Such errors are understandable in retrospect. It is necessary to examine numerous specimens before one becomes convinced that particular constellations of characters signify species. The problem of species recognition is rendered more difficult where association of the sexes is not obvious. This problem is discussed below. The present paper gives diagnoses, distribution records, and a key to the five species now known to be included in the complex, four of which are new and are herein named and described.

This complex includes species in which adults are fully winged. The forewing (Figs. 2, 8, 14, 20, 27) is patterned with spots at or near the marginal ends of several veins. The male clunium is unique for the genus, being completely divided into a basal semi-ring, here termed basiclunium (Fig. 1, bcl), and a distal quadrangle piece, here termed distoclunium (Fig. 1, dcl). The basiclunium articulates on each side with the hypandrium and the distoclunium articulates distally with the epiproct medially and the paraprocts laterally. The male epiproct bears a single slender, asymmetrical appendage directed forward over the dorsal abdominal surface. The male paraproctal processes are large, hook-like, and well sclerotized. The ovipositor valvulae consist of a single appendage on each side. The female ninth sternum is sclerotized only on its hind margin, and the sclerotized region does not include the spermapore. The subgenital plate is decidedly bilobed on its hind margin.

Closest relatives to the *L. rena* complex are found in South America. A small complex in Colombia, Venezuela, and Peru represented by the described species *L. aldretei* Badonnel (1986:209), *L. trujillensis* García Aldrete (1995:25), and *L. venepes* García Aldrete (1997:221) has a double male epiproctal process. An undescribed species from southern Brazil has a single long male epiproctal process, but in none of the South American forms is the

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male clunium divided into anterior and posterior regions, and all of them lack wing spotting.

MATERIALS AND METHODS

Descriptions are based on examination of the following numbers of adult specimens: 93 *L. rena*, including two male topotypic paratypes, 15 *L. huasteca* n. sp., 32 *L. otomi* n. sp., 14 *L. anahuacensis* n. sp. and 5 *L. yucateca* n. sp. Illustrations were made with the aid of a drawing tube (body parts) and microprojector (wings). Measurements (expressed in μm) were made on slide-mounted parts with a filar micrometer. Color descriptions are based on observations through a dissecting microscope with direct light on specimens preserved in 80% ethyl alcohol for various periods of time.

Abbreviations are as follows: FW = forewing, HW = hindwing, F = hind femur, T = hind tibia, t1 = hind first tarsomere, t2 = hind second tarsomere, t1ct = number of ctenidia (comb-based setae) on hind first tarsomere, f1-f3 = first-third flagellomeres, IO = least distance between compound eyes, d = lateral diameter of a compound eye in either dorsal or anterior view, P4 = distal segment of maxillary palpus.

Holotypes and allotypes of the new species will be deposited in the Illinois Natural History Survey, Champaign, IL (INHS), and the Institute of Biology, Universidad Nacional Autónoma de México, Mexico City (IBUNAM). Paratypes will be placed in the above institutions and in the author's collection, currently housed in the Department of Biological Sciences, Illinois State University, Normal, IL (ELM).

Association of Sexes and Color Description

Where closely similar species overlap in their distribution and occur in the same habitats, the problem of association of sexes becomes difficult. Whereas *L. rena* in southwestern United States and southern Texas is found to the north of all of the other species, the four others overlap broadly in Mexico. Association of the sexes of *L. yucateca* is obvious on the basis of color and shape of the wings (see descriptions, below). In both sexes of *L. anahuacensis*, spotting on the forewing is restricted to the ends of veins M2, M3 and Cu1a. The sexes distinguished thus were found together at two biotopes. The most difficult problem involved the two species *L. huasteca* and *L. otomi*, which are distinguished only on genitalic characters. The finding of both sexes of *L. huasteca* together in the Maricao Forest, Puerto Rico, was of primary importance in this association. Associated as indicated below, the sexes of *L. huasteca* were found together in three biotopes, and those of *L. otomi* were found together in four biotopes.

All characters noted above for the complex apply to all of the included species and are not repeated in the descriptions. Except for differences in wing

markings, a single color pattern is shared by both sexes of all of the species (but note exception, below, for *L. yucateca* n. sp.). Variation from this pattern appears to be attributable primarily to age at preservation and nature or duration of preservation. The pattern is described here, and only departures from it are noted in species descriptions.

Color. Compound eyes black. Ocelli colorless. Remainder of head creamy yellow marked with pale brown: a broad brown band along midline of vertex from hind margin to ocelli, a brown spot bordering each eye medially, a narrow brown ring around each ocellus, a brown spot on frons before median ocellus, brown chevrons on postclypeus. P4 brown, darker than remaining segments. Antennae pale brown. Thorax pale brown; legs somewhat paler brown. Wings clear except for markings as noted for each species. Abdomen: preclunial segments creamy yellow, each with a purplish brown transverse band of subcuticular pigment across tergum, not extending to sternum. Genital segments pale brown.

Lachesilla huasteca, NEW SPECIES

Diagnosis. Body color as noted. Length: greatest width of forewing ca. 2.86. Male epiproctal process nearly twice as long as width of distoclunium, acuminate and curved leftward at apex. Female subgenital plate shallowly bilobed apically, its median region set off by pair of marks in form of reversed parentheses.

Color. As noted above for the complex, differing in following details: forewing (Fig. 2) with R1 darkly marked along distal margin of pterostigma; brown distal spots along veins R2+3 and R4+5 not touching the veins; spots present along hind margin of vein Cu1 from its basal separation from M to its distal branching; spots present along hind margin of vein Cu2 in its distal half; bands of preclunial abdominal segments more reddish brown than indicated above.

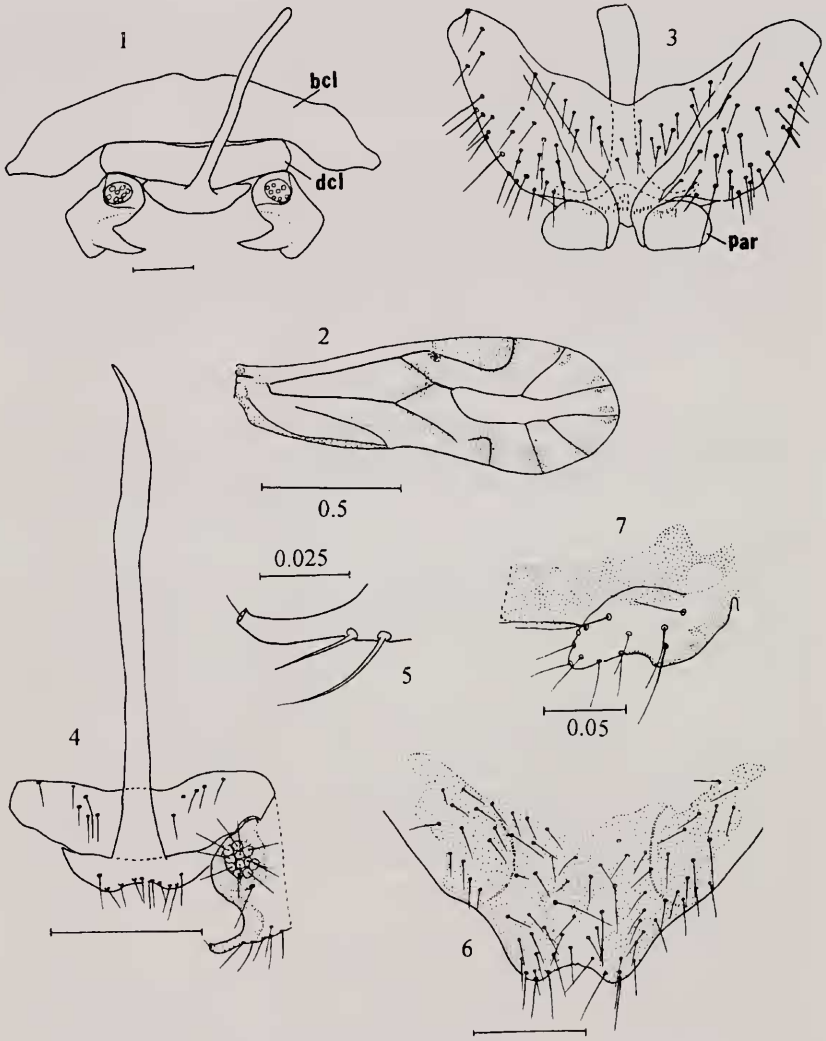
Male structural characters. Forewing (as in Fig. 2): R1 rounded at distal end of pterostigma. Rs-M junction ca. half-length of preceding Rs segment; cell Cu1a not quite as high as wide. Hypandrium (Fig. 3) with claspers short, curved slightly outward and flanked their entire length by the rounded paraphallic pads (Fig. 3, par). Phallic apodeme (Fig. 3) short and wide; arms curved, somewhat less than half-length of stem. Epiproct (Fig. 4) with appendage very long, without denticles, the acuminate tip pointing leftward. Paraproct (Fig. 4) with slender process slightly bent distally, truncate at tip with a minute seta arising from tip (Fig. 5); sensorium with 9-10 trichobothria on basal rosettes (n = 2 individuals, 4 sides, one with one trichobothrium lacking basal rosette) or 11-12 trichobothria on basal rosettes (n = 1 individual, 2 sides), plus single long peripheral seta.

Male measurements. FW = 1317, HW damaged, F = 246, T = 488, t1 = 151, t2 = 74, t1ct = 15, f1 = 168, f2 = 126, f3 = 123, IO = 234, d = 80, IO/d = 2.93.

Female structural characters. Forewing (Fig. 2) as described for male. Subgenital plate (Fig. 6) with bilobed median region of relatively low relief; margin between lobes not heavily sclerotized; middle region of plate delimited by two externally concave curved lines; other than these lines, no interior thickening visible on plate. Ovipositor valvula (Fig. 7) with hind margin emarginate, apex bluntly rounded. Paraproctal sensorium with nine trichobothria on basal rosettes and one lacking basal rosette (n = 3 specimens, 6 sides).

Female measurements. FW = 1273, HW = 1024, F = 247, T = 443, t1 = 153, t2 = 80, t1ct = 10, f1 = 123, f2 = 83, f3 = 83, IO = 246, d = 71, IO/d = 3.46.

Material Examined. Types: Mexico: Veracruz: 8 km S of Tecolutla on Gulf shore, 26 June 1962, beaten from low strand vegetation containing many dead leaves, coll. E.L. Mockford,



Figs. 1-7. Fig. 1. *Lachesilla rena* Sommerman. Male, clunium, epiproct, and paraprocts (bcl = basiclunium, dcl = distoclunium). Figs. 2-7. *L. huasteca* n. sp. Fig. 2. Female, forewing. Fig. 3. Male, hypandrium and phallic apodeme, scale of Fig. 4 (par = paraphallic pad). Fig. 4. Male, distoclunium, epiproct, and right paraproct. Fig. 5. Male, paraproctal process. Fig. 6. Female, subgenital plate. Fig. 7. Female, left ovipositor valvula. Scale bars = 0.1 mm unless noted otherwise.

holotype ♂, paratype ♀ (ELM No. 2022, INHS); same locality and date, beaten from coconut palm leaves, coll. F. Hill and E.L. Mockford, 1 ♂ paratype, ♀ allotype (ELM No. 2023, INHS); 9.7 km N of Lerdo, Highway 180, 23 June 1966, beating foliage in scrubby pasture, 1 ♀ paratype (ELM No. 2969, IBUNAM); Campeche: coastal highway between Cd. Campeche and Seybaplaya, 6 July 1951, coll. J.L. Stannard, 2 ♂ paratypes (INHS); San Luis Potosí: El Salto, 19 June 1962, beating tall grass and other foliage below falls, coll. E.L. Mockford and J.M. Campbell, 3 ♀ paratypes (ELM No. 1983, ELM); 3.5 km W of Naranjo, 20 June 1962, beating sabal palms, coll. E.L. Mockford and F. Hill, 1 ♀ paratype (ELM No. 1993, IBUNAM). Tamaulipas: 13.7 km N of El Limon, 17 June 1962, coll. F. Hill and E.L. Mockford, 1 ♀ paratype (ELM No. 1975, ELM). United States: Florida: Dade Co.: Miami, 24 January 1971, swept from dead grass, coll. C. Stegmaier, 1 ♀ paratype (ELM No. 4018, ELM); Hillsborough Co.: Tampa, 26 February 1991, on *Bidens pilosa*, coll. E. Simmons, 1 ♀ paratype (ELM No. 5766, ELM). Puerto Rico: Maricao Insular Forest, 11 March 1959, beating vegetation, coll. E.L. Mockford, 1 ♂, 1 ♀ paratypes (ELM No. 59-PR-4, ELM).

Note. This is the species called *L. rena* in Mockford (1993, Fig. 660).

Etymology. The name refers to a region in northeastern Mexico (parts of the states of Tamaulipas, Veracruz, Hidalgo, and San Luis Potosi) which includes much of the range of this species.

Lachesilla otomi, NEW SPECIES

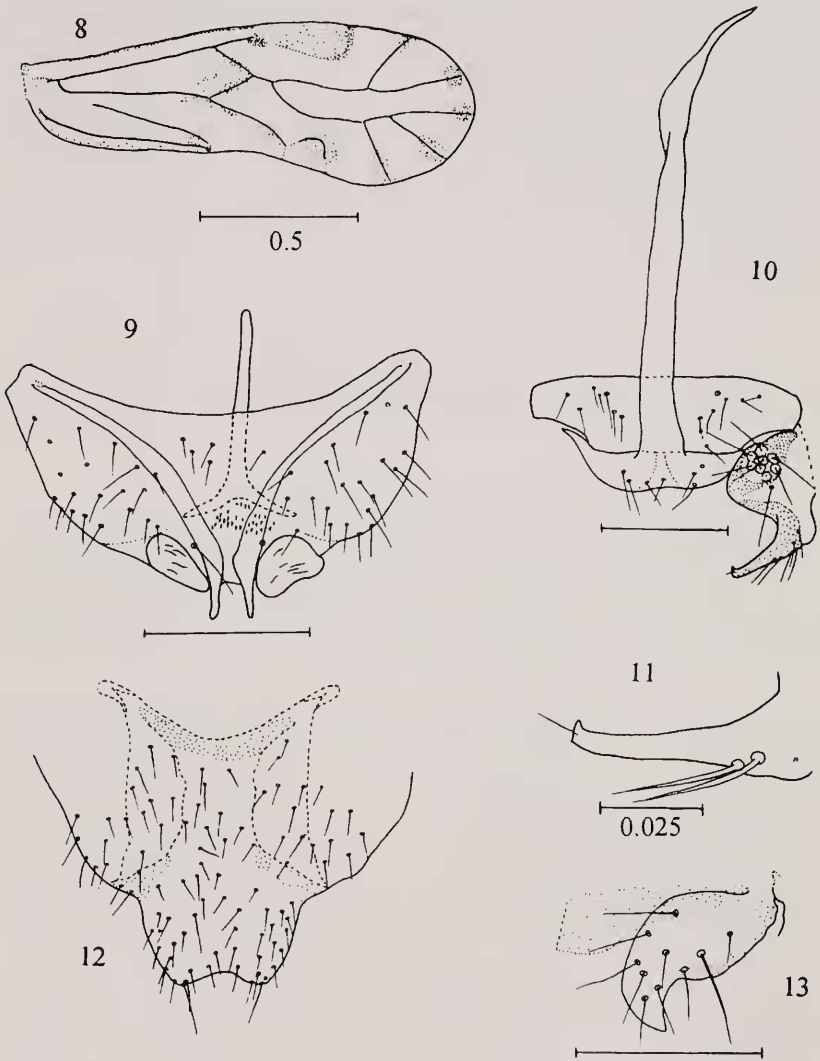
Diagnosis. Body color as noted. Length: greatest width of forewing ca. 2.86. Male epiproctal process ca. 1.7 times as long as width of distocunium, acuminate and curved rightward at apex. Female subgenital plate shallowly bilobed apically, its median region quadrate, strongly sclerotized on anterior margin.

Color. As noted above for the complex, differing in following details: forewing (Fig. 8) with R1 moderately dusky along distal margin of pterostigma; spots present along hind margin of vein Cu1 from its basal separation from M to its distal branching and continuing a short distance basad along vein M+Cu1; a small spot distally along front border of vein Cu2; a few small spots in cell R before its distal end.

Male structural characters. Forewing (as in Fig. 8): R1 straight at distal end of pterostigma, reaching wing margin at slightly less than right angle on distal side; Rs-M junction ca. half length of preceding Rs segment; cell Cu1a ca. 0.7x as high as wide. Hypandrium (Fig. 9) with claspers of moderate length, straight, flanked only at bases by kidney-shaped paraphallic pads. Phallic apodeme (Fig. 9) of moderate length, slender; arms straight or slightly curved, ca. one-third length of stem. Epiproct (Fig. 10) with appendage very long, lacking denticles, the acuminate tip pointing rightward. Paraproct (Fig. 10) with slender process slightly curved distally, truncate at tip with a minute seta arising from tip (Fig. 11); sensorium with 9 trichobothria on basal rosettes and one lacking basal rosette (n = 3 individuals, 5 sides), or 8 trichobothria on basal rosettes and one lacking basal rosette (n = 1 individual, 1 side), plus a single long peripheral seta.

Male measurements. FW = 1454, HW = 1130, F = 257, T = 522, t1 = 176, t2 = 80, t1ct = 14, f1 = 172, f2 = 124, f3 = 115, IO = 244, d = 80, IO/d = 3.05.

Female structural characters. Forewing (Fig. 8) as described for male. Subgenital plate (Fig. 12) with bilobed median region relatively elongate; margin between lobes not heavily sclerotized; middle region of plate delimited by two nearly straight lines and within these a slenderer



Figs. 8-13. *Lachesilla otomi* n. sp. Fig. 8. Female, forewing. Fig. 9. Male, hypandrium and phallic apodeme. Fig. 10. Male, distoclitunium, epiproct, and right paraproct. Fig. 11. Male, paraproctal process. Fig. 12. Female, subgenital plate, scale of Fig. 10. Fig. 13. Female, left ovipositor valvula. Scale bars = 0.1 mm unless noted otherwise.

internal thickening running from distal bilobed region to base of plate, terminating proximally in pair of well sclerotized pigmented arms readily visible in whole, uncleared individuals. Ovipositor valvula (Fig. 13) directed posteriorly. Paraproctal sensorium with 9 trichobothria on basal rosettes and one lacking basal rosette ($n = 4$ individuals, 8 sides).

Female measurements. FW = 1458, HW = 1127, F = 266, T = 505, t1 = 178, t2 = 78, t1ct = 16, f1 = 133, f2 = 105, f3 = 92, IO = 234, d = 67, IO/d = 3.49.

Material Examined. Types: Guatemala, 36 km NE of Guatemala City on highway to Puerto Barrios, 27 August 1973, in hanging dead leaves of miscellaneous shrubs, coll. A.N. García Aldrete, holotype ♂, allotype ♀, 1♂ and 9♀ paratypes (ANGA No. 673, IBUNAM); Mexico: Campeche: 16.1 km SW of Hopelchen, highway 180, 29 June 1966, beating herbaceous foliage with many dead leaves, coll. E.L. Mockford, 1♀ paratype (ELM No. 2995, ELM); Cd. Campeche, 4 July 1951, beating twigs, coll. L.J. Stannard, 5♀ paratypes (INHS), Chiapas: 4 km N of Tuxtla Gutiérrez, 15 July 1962, beating small trees, coll. E.L. Mockford and F. Hill, 1♂, 2♀ paratypes (ELM No. 2091, ELM); 38.3 km E of junction with highway 185 on highway 190, 12 July 1962, beating vegetation in scrubby forest, coll. E.L. Mockford, 1♀ paratype (ELM No. 2081, ELM); 10 km SW of Jaltenango, el. 700 m, 4 May 1993, beating branches bearing dead leaves, coll. A.N. García Aldrete, 1♀ paratype (IBUNAM); Jalisco: Chamela UNAM Biological Station, February 1980, coll. A.N. García Aldrete, 1♀ paratype (IBUNAM); Oaxaca, 33.5 km S of Matías Romero, highway 185, 12 July 1962, beating vegetation in scrubby forest, coll. E.L. Mockford and F. Hill, 1♂, 1♀ paratypes (ELM No. 2079, ELM); Quintana Roo: Cancún, 15 July 1951, ex dead branches, coll. L.J. Stannard, 1♀ paratype (INHS); 5 October 1971, in dead hanging leaves of *Solanum* sp., coll. A.N. García Aldrete, 1♀ paratype (IBUNAM); San Luis Potosí: El Salto, 19 June 1962, beating tall grass below falls, 1♂ paratype (ELM No. 1989, ELM); Sinaloa: highway 15, 23 km SE of Villa Union, 19 July 1963, beating palmetto leaves, coll. E.L. Mockford, 1♀ (non-type) (ELM); Yucatán: Uxmal, 2 July 1951, coll. L.J. Stannard, 2♀ paratypes (INHS); Guatemala: 33.8 km NE of Guatemala City, highway to Puerto Barrios, 27 August 1968, beating dead hanging leaves in arid scrub area, coll. E.L. Mockford and A.N. García Aldrete, 1♂, 1♀ paratypes (ELM No. 3548, ELM); Nicaragua: Masaya: Las Flores, 30 September 1994, Malaise trap, coll. J.M. Maes, 1♀ paratype (IBUNAM); United States: Florida: Franklin Co: Alligator Point, 12 March 1976, coll. C.W. O'Brien, 1♂ (non-type) (IBUNAM).

Note. This is the species called *L. rena* in García Aldrete (1974, Fig. 189), and Mockford (1993, Fig. 214).

Etymology. The name refers to an indian tribe of central Mexico whom the Aztecs viewed as uncivilized.

Lachesilla anahuacensis, NEW SPECIES

Diagnosis. Body color as noted. Length: greatest width of forewing ca. 2.74. Male epiproctal process about as long as width of distoclunium, acuminate and straight at apex. Female subgenital plate deeply bilobed apically, its median region with weak rounded internal thickening.

Color. Body colorations as described for the complex; forewing (Fig. 14) lacking spots at marginal ends of Rs veins and M1, also lacking marking along veins closing cell R.

Male structural characters. Forewing (Fig. 14): R1 rounded at distal end of pterostigma, reaching wing margin at slightly less than right angle on distal side; Rs-M junction very short, ca. one-fifth or less length of preceding Rs segment; cell Cula ca. 0.7x as high as wide. Hypandrium

(Fig. 15) with claspers short, stout, slightly bent inward at tips, flanked most of their length by rounded paraphallic pads. Phallic apodeme (Fig. 15) with stem of moderate length, somewhat sinuous; arms widening and becoming semimembranous distally (Fig. 15). Epiproct (Fig. 16) with appendage relatively short, straight or curved to one side near base, pointed at apex. Paraproct (Fig. 16) with slender process slightly curved in distal half, truncate at tip with a minute seta arising from tip (Fig. 17); sensorium in each case with one peripheral trichobothrium lacking basal rosette and following numbers on basal rosettes: 9&10 (n = 1), 9&11 (n = 1), 11&12 (n = 1); long peripheral seta absent. Clunium before epiproct with a small quadrate unpigmented area.

Male measurements. FW = 1405, HW = 1192, F = 316, T = 592, t1 = 216, t2 = 84, t1ct = 19, f1 = 186, f2 = 167, f3 missing, IO = 265, d = 73, IO/d = 3.63.

Female structural characters. Forewing (as in Fig. 14) as described for male. Subgenital plate (Fig. 18) deeply bilobed distally, the lobes bluntly pointed at tips and with crenulate inner margins; inner thickening of plate a rounded median area slightly more strongly pigmented than remainder of plate. Ovipositor valvula (Fig. 19) with hind margin slightly curved; distal end a weakly developed beak. Paraproctal sensorium with 9 trichobothria on basal rosettes plus one lacking basal rosette (n = 4 individuals, 7 sides) or 10 on basal rosettes, none without (n = 1 individual, 1 side).

Female measurements. FW = 1434, HW = 1136, F = 300, T = 567, t1 = 211, t2 = 87, t1ct = 17, f1 = 170, f2 = 147, f3 = 121, IO = 260, d = 88, IO/d = 2.95.

Material examined. Types: Mexico: Campeche: Calakmul Biosphere Reserve: Archaeological Zone (18°07' 26.7" N, 89°48' 56.7" W), el. 265 m, 20 September 1997, beating branches of shrubs and hanging dead leaves, coll. J.A. Casasola, holotype ♂ allotype ♀ and 1 ♂ paratype (IBUNAM); same locality but 18°24' 56.4" N, 89°08' 10.5" W and el. 170-200 m, 22 September 1997, same habitat and collector, 1 ♂ paratype (IBUNAM); km 178 on Escárcega-Chetumal Highway, 23 June 1989, coll. L. Cervantes and A. Cadena, 1 ♂, 1 ♀ paratypes (IBUNAM); Xpujil: Ruins of Becán, 28 April 1973, sweeping 2-year milpa, coll. R.B. Waide, 1 ♂ paratype (ELM); Chiapas: El Ocote Reserve, el. 700 m, 1 May 1993, in dead banana leaves, coll. A.N. García Aldrete, 1 ♀ paratype (IBUNAM); Tamaulipas, 8-16 km W of Gómez Farías, 16 June 1962, beating roadside vegetation, forest edge, coll. E.L. Mockford, J.M. Campbell, and F. Hill, 1 ♂ paratype (ELM No. 1971, ELM); Highway 85, 1.6 km S of Xicotencatl road, 30 March 1961, beating cattails (*Typha* sp.), coll. E.L. Mockford, 1 ♂ paratype (ELM No. 1808, ELM); Puebla: Barranca de Patla, hydroelectric plant, 20°14' N, 97°53' W, 12 July 1994, beating foliage and branches, coll. J.A. Casasola, 1 ♀ paratype (IBUNAM); Veracruz: Los Tuxtlas UNAM Biological Station, 26 June 1979, beating vegetation in forest, coll. A.N. García Aldrete, 1 ♂ paratype (IBUNAM); Gulf beach near Balzapote, 28 March 1997, beating branches bearing dead leaves, coll. A.N. García Aldrete, 1 ♀ paratype (IBUNAM). Nicaragua: Masaya: Las Flores, 30 September 1994, Malaise trap, coll. J.M. Maes, 1 ♂ paratype (IBUNAM).

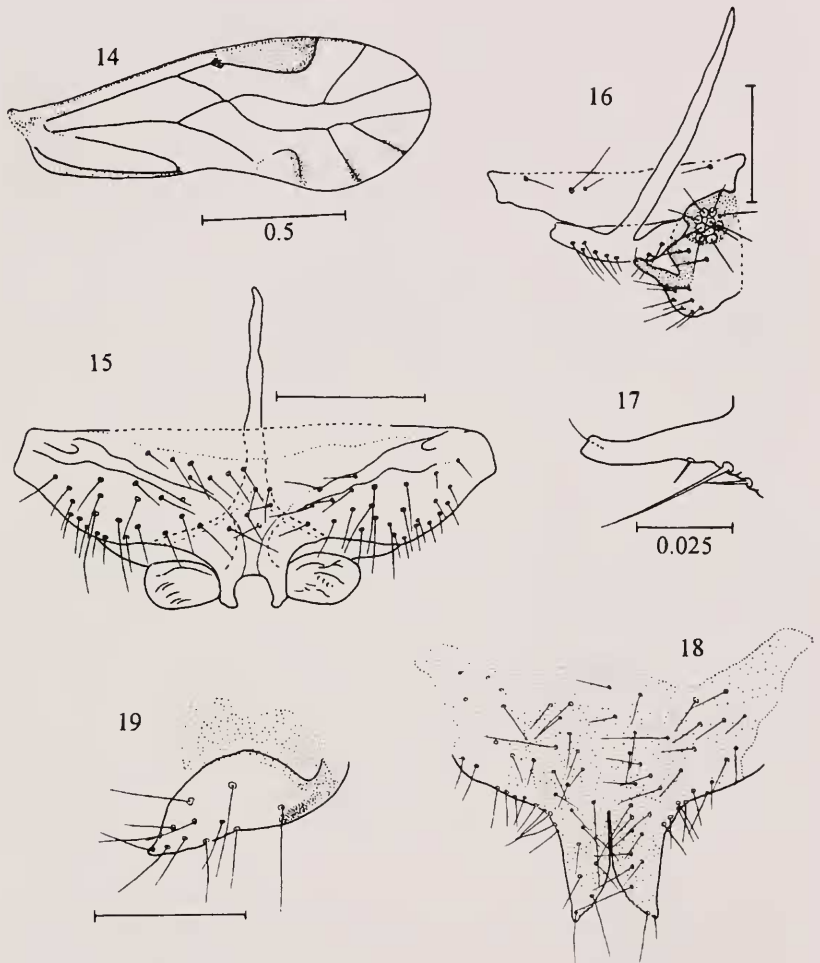
Note. This is the species called *L. rena* in García Aldrete (1974, Figs. 196, 197, and 198).

Etymology. Anáhuac is the Aztec name for the central region of Mexico including Mexico City.

Lachesilla rena Sommerman

Lachesilla rena Sommerman, 1946: 653.

Diagnosis. Body color as noted. Length: greatest width of forewing ca. 2.86. Male epiproctal process ca. 1.5 times as long as width of distoclunium, bluntly rounded at apex. Female subgenital plate shallowly bilobed apically, its median region not delimited.



Figs. 14-19. *Lachesilla anahuacensis* n. sp. Fig. 14. Male, forewing. Fig. 15. Male, hypandrium and phallic apodeme. Fig. 16. Male, distoclunium, epiproct, and right paraproct. Fig. 17. Male, paraproctal process. Fig. 18. Female, subgenital plate, scale of Fig. 16. Fig. 19. Female, left ovipositor valvula. Scale bars = 0.1 mm unless noted otherwise.

Color. As noted above for the complex, differing in following details. Forewing (Fig. 20) with R1 somewhat darkened along distal margin of pterostigma; a series of spots bordering vein M+Cu1 posteriorly; one or more spots present or not along hind margin of vein Cu1 from its basal separation from M to its distal branching; one or two spots at distal end of vein Cu2.

Male structural characters. Forewing (approximately as in Fig. 20): R1 at distal end of pterostigma perpendicular to wing margin; Rs-M junction slightly less than half length of preceding Rs segment; cell Cu1a approximately as high as wide. Hypandrium (Fig. 21) with claspers straight, flanked only at their fused base by somewhat flattened paraphallic pads. Phallic apodeme (Fig. 21) slender, straight or slightly curved at base; phallic arms slender, curved, nearly reaching sides of hypandrium. Epiproct (Fig. 22) with process slightly sinuous in middle, bearing a few denticles near distal end, blunt-tipped. Paraproct (Fig. 25) with process beak-shaped, pointed and without minute seta distally (Fig. 23); sensorium with 7-10 trichobothria on basal rosettes, usually with one trichobothrium lacking basal rosette, plus one long peripheral seta (9 individuals observed).

Male measurements (topotypic paratype). FW = 1452, HW = 1087, F = 284, T = 535, t1 = 156, t2 = 82, t1ct = 9, f1 = 181, f2 = 163, f3 = 154, IO = 241, d = 93, IO/d = 2.59.

Female structural characters. Forewing as described for male (Fig. 20). Subgenital plate (Fig. 24) with bilobed median region relatively long; margin between lobes heavily sclerotized; no interior thickening visible on plate. Ovipositor valvula (Fig. 25) with hind margin approximately straight, apex rounded. Paraproctal sensorium with 9-11 trichobothria on basal rosettes (n = 3 individuals, 2 with 9 both sides, 1 with 10 on one, 11 on other side) and one trichobothrium lacking basal rosette.

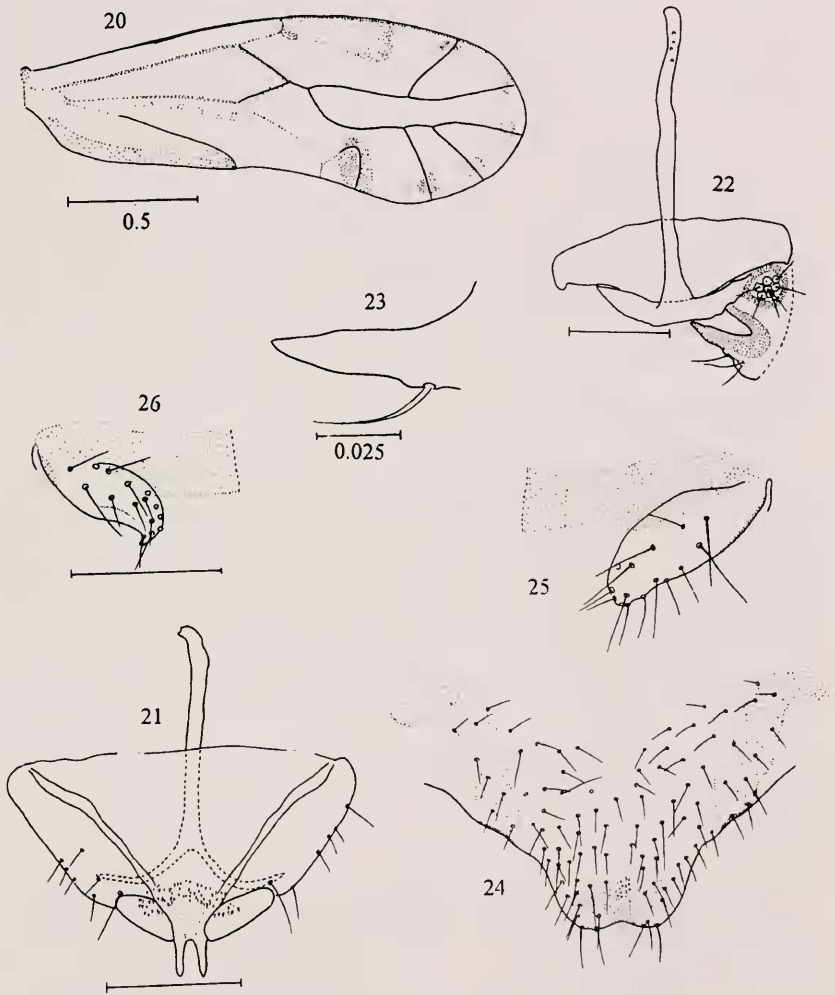
Female measurements (Brawley, California). FW = 1799, HW = 1425, F = 310, T = 592, t1 = 183, t2 = 99, t1ct = 14, f1 = 186, f2 = 122, f3 = 112, IO = 303, d = 80, IO/d = 3.79.

Material examined. United States: Arizona: Maricopa Co.: Phoenix, 9 July 1937, cover sweepings in orchard, coll. Richardson and Jones 2♂ (topotypic paratypes, INHS); California: Imperial Co.: Bard, 19 July 1956, coll. E.I. Schlinger, 8♂, 4♀; Brawley, 29 January-14 April 1959, vacuum cleaner in alfalfa field, coll. E.I. Schlinger, 18♂, 15♀; Calexico, 11 July 1957-31 July 1958, car net and vacuum cleaner in alfalfa field, coll. E.I. Schlinger, 10♂, 2♀; Riverside Co.: Deep Canyon, 4 September 1963, at light, coll. E.I. Schlinger, 1♂; Indio, September 1963, 2♂, 1♀; Riverside, 20 September 1960, ex citrus by machine, coll. E.I. Schlinger, 1♂; June 1963, machine collection on coffee and alfalfa, coll. E.I. Schlinger and J. Hall, 3♀; Riverside, UCR Campus, 29 September 1980, coll. D.C. Hawks, 1♂; San Diego Co.: Rancho Santa Fe, 3 March 1959, vacuum cleaner in alfalfa field, coll. E.I. Schlinger, 1♂; Warner Springs, 2 May 1962, ex leaf mold, machine sample, coll. E.I. Schlinger, 1♂; Texas: Hidalgo Co.: Bentsen Rio Grande Valley State Park, 28 January 1958, sifting ground litter of leaves from thorny trees, coll. E.L. Mockford, 1♀; Weslaco, 20 June 1958, on pea pod samples, coll. D. Wolfenbarger, 1♂, 1♀ Mexico: Sinaloa: Juan Jose Rico, 12 June 1973, coll. F. Pacheco, 9♂, 10♀. Haiti: Milot, ruins of Palais de Christophe, 20 May 1959, coll. M.W. Sanderson, 1♂.

Note. Guatemalan records, Mexican records for the states of Campeche, Chiapas, San Luis Potosi, Tamaulipas, and Veracruz, and Puerto Rican records (Mockford, 1993) refer to *L. huasteca*, *L. otomi*, and *L. anahuacensis*. Central American and Caribbean records cited by García Aldrete (1996) also refer to these species.

Lachesilla yucateca, NEW SPECIES

Diagnosis. Wings of both sexes relatively long and slender (Fig. 27); length: greatest width of forewing ca. 3.16. Body creamy yellow imparted by subcuticular tissues.



Figs. 20-26. Figs. 20-25. *Lachesilla rena* Sommerman. Fig. 20. Female, forewing. Fig. 21. Male, hypandrium and phallic apodeme. Fig. 22. Male, distoclunium, epiproct, and right paraproct. Fig. 23. Male, paraproctal process. Fig. 24. Female, subgenital plate. Fig. 25. Female, left ovipositor valvula, scale of Fig. 26. Fig. 26. *L. ycateca* n. sp. Female, right ovipositor valvula. Scale bars = 0.1 mm unless noted otherwise.

Color. Body surface essentially colorless (creamy yellow subcuticular tissues showing through) except for black eyes. Forewing (Fig. 27) with faint brown smudge bordering vein R1 at distal end of pterostigma and faint spots bordering distal ends of veins M2, M3, and Cu1a.

Male structural characters (single male in poor condition). Forewing (as in Fig. 27): relatively long and slender; R1 reaching wing margin at distal end of pterostigma at angle decidedly greater than 90° on outer side; Rs-M junction ca. one-third length of preceding Rs segment. Hypandrium (Fig. 29) with claspers short (one, possibly both broken off), paraphallic pads missing. Phallic apodeme (Fig. 29) slender, acuminate anteriorly, arms strongly arched. Epiproct (Fig. 30) with process slender, straight, pointed at apex, lacking denticles. Paraproct (mostly obscured on preparation) with slender process, slightly bent distally, truncated at tip; trichobothria of sensorium not countable.

Male measurements. FW = 1492, HW = 1128, F = 236, T = 468, t1 = 130, t2 = 71, t1ct = 12, f1 = 181, f2 = 145, f3 = 133, IO = 200, d = 72, IO/d = 2.78.

Female structural characters. Forewing (Fig. 27) as described for male. Subgenital plate (Fig. 28) with bilobed median region short; margin between lobes not heavily sclerotized; middle region of plate delimited by a quadrate area with short antero-lateral extensions. Ovipositor valvula (Fig. 26) with hind margin decidedly curved, the pointed tip directed laterally. Paraproctal sensorium with 9 trichobothria on basal rosettes (n = 3 individuals, 5 sides) plus one lacking basal rosette (n = 2 individuals, 3 sides) or ten on basal rosette and one without (n = 1 individual, 1 side).

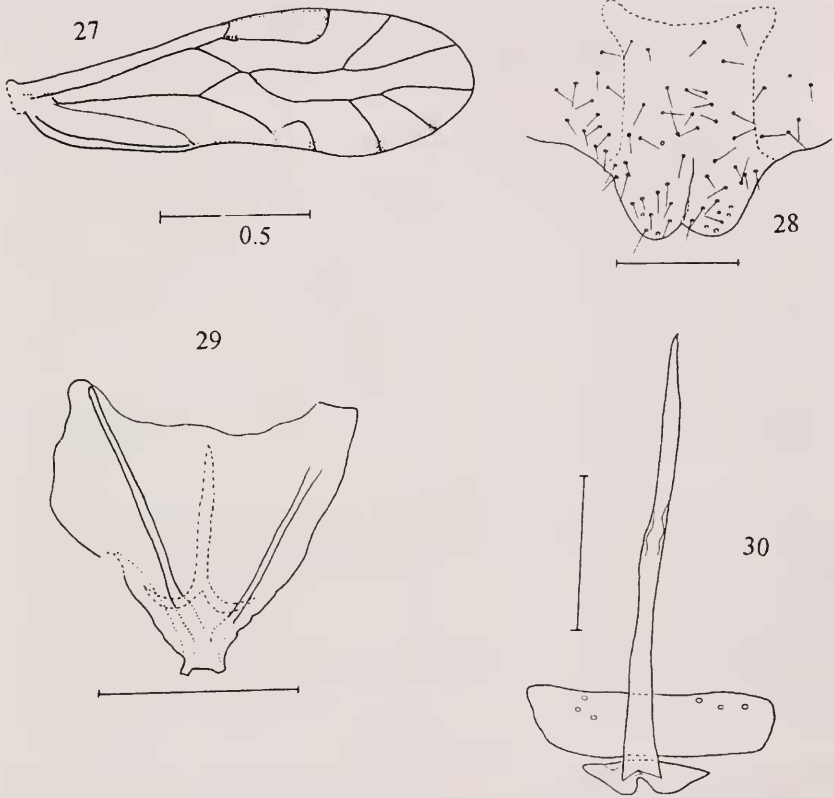
Female measurements. FW = 1515, HW = 1184, F = 266, T = 488, t1 = 138, t2 = 74, t1ct = 10, f1 = 126, f2 = 99, f3 = 90, IO = 207, d = 67, IO/d = 3.09.

Material Examined. Types: México: Oaxaca: 16 km SE of Junction of Nejapa road with Highway 180, 22 August 1972, beating dead leaves of tall grass, coll. A.N. García Aldrete, holotype ♀ (ANGA No. 659, IBUNAM); Quintana Roo: 11 km W of Carillo Puerto, 12 February 1982, in branches and dead leaves of miscellaneous vegetation, coll. R. Medellín, 1 ♀ paratype (IBUNAM); Tamaulipas: Highway 85, 0.6 km S of road to Xicotencatl, 30 March 1961, beating cattails (*Typha* sp.) coll. E.L. Mockford, 1 ♀ paratype (ELM); Yucatán: Uxmal, 2 July 1951, coll. L.J. Stannard, 1 ♀ paratype (INHS). Non-type: Mexico: Jalisco: Chamela UNAM Biological Station, no other data, 1 ♂ (in very poor condition on slide).

Etymology. The name is the Mexican name for the native peoples of the Yucatán Peninsula.

Key to species of the *Lachesilla rena* complex

1. Wings of both sexes relatively long and slender (Fig. 27). Length: greatest width of forewing > 3.00. Body surface, except for eyes and wing veins, nearly unpigmented. *L. yucateca* n. sp.
- Wings of both sexes broader than above. Length: greatest width of forewing < 2.90. Body extensively marked with shades of brown 2.
2. Near tip of abdomen ventrally a y-shaped phallic sclerite with stem directed forward (Figs. 3, 9, 15, 21); paraprocts each bearing a well-sclerotized hook-like process (Figs. 4, 10, 16, 22); epiproct bearing a long, slender process directed forward along the dorsal midline (Figs. 4, 10, 16, 22) males 3.
- Lacking the characters described above; subgenital plate bilobed on distal margin (Figs. 6, 12, 18, 24) flanked on each side by a simple ovipositor valvula rounded or pointed at its tip (Figs. 7, 13, 19, 25) females 6.
3. Epiproctal process blunt-tipped (Fig. 22); paraproctal processes beak-like, pointed at tip, the tip lacking a minute seta (Fig. 23); well-colored individuals usually with a row of pigment spots or a pigmented band bordering hind margin of vein M+Cu1 in the forewing (Fig. 20) *L. rena* Sommerman.



Figs. 27-30. *Lachesilla yucateca* n. sp. Fig. 27. Female, forewing Fig. 28. Female, subgenital plate. Fig. 29. Male, hypandrium and phallic apodeme. Fig. 30. Male, distoclunium and epiproct. Scale bars = 0.1 mm unless noted otherwise.

- Epiproctal process pointed at tip (Figs. 4, 10, 16); paraproctal processes truncated apically, the truncated surface bearing a minute seta (Figs. 5, 11, 17); in forewing no pigmented band or line of spots bordering vein M+Cu1 posteriorly 4.
- 4. Epiproctal process relatively short (Fig. 16), only about as long as the width of the distoclunium. Claspers of hypandrium slightly bent inward at tips (Fig. 15) *L. anahuacensis* n. sp.
- Epiproctal process long, nearly twice as long as width of distoclunium (Figs. 4, 10)
- Claspers of hypandrium straight or slightly outcurved (Figs. 3, 9) 5.
- 5. Arms of phallosome relatively long and curved, one-third or more length of basal apodeme of phallosome (Fig. 3). Claspers of hypandrium curved slightly outward (Fig. 3); epiproctal process curved leftward at tip (Fig. 4) *L. huasteca* n. sp.
- Arms of phallosome short and straight, < one-third length of basal apodeme of phallosome (Fig. 9). Claspers of hypandrium straight (Fig. 9); epiproctal process curved rightward at tip (Fig. 10) *L. otomi* n. sp.
- 6. Subgenital plate deeply bilobed on distal margin, the two lobes pointed apically (Fig. 18) *L. anahuacensis* n. sp.
- Distal margin of subgenital plate shallowly bilobed, the lobes rounded apically (Figs 6, 12, 24) 7.
- 7. Subgenital plate with a strong quadrate internal thickening heavily sclerotized along its anterior margin (Fig. 12) *L. otomi* n. sp.
- Subgenital plate lacking an internal quadrate thickening 8.
- 8. Ovipositor valvula indented on its posterior margin (Fig. 7). Subgenital plate with median region delimited by pair of inverted parenthesis-like marks (Fig. 6) *L. huasteca* n. sp.
- Ovipositor valvula straight or nearly so on its posterior margin (Fig. 25). Subgenital plate with median region not delimited (Fig. 24) *L. rena* Sommerman.

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